

IN THE CLAIMS:

1 1.-28. (Cancelled).

1 29. (Currently Amended) A method for accessing a data storage system, comprising:

2 ~~maintaining a virtual logical unit assigned to one or more specific clients;~~

3 ~~receiving a log-in request from a first specific client, the log-in request~~

4 ~~directed to the virtual logical unitdata storage system;~~

5 ~~generating, in response to the log-in request, a first logical unit number map~~

6 ~~(lun map), from the virtual logical unit to one or more physical logical units, the first~~

7 ~~specific client having for the specific client by determining one or more physical logical~~

8 ~~unit numbers (PLUNs) of the data storage system that the first specific client has~~

9 ~~permission to access and then mapping one or more client specific virtual logical unit~~

10 ~~numbers (VLUNs) of the first specific client to the one or more PLUNs, in the first lun~~

11 ~~map the physical logical units mapped by the first lun map, the first lun map presenting~~

12 ~~one or more client specific lun numbers, accessible solely by the first specific client,~~

13 ~~mapped to one or more physical lun numbers utilized by the storage operating system;~~

14 ~~exporting the client specific lun-VLUNs numbers to the first specific client; and~~

15 ~~receiving a data access request command from the first specific client, the request~~

16 ~~directed to a selected client specific lun-VLUN in the first lun map, and translating the~~

17 ~~client specific lun-VLUN into a selected physical lun number~~PLUN~~ utilizing the first lun~~

18 ~~map, and performing the data access request command on the selected PLUN associated~~

19 ~~with the data storage system the physical lun number accessing the physical logical unit~~

20 ~~supporting the client specific lun.~~

1 30. (Currently Amended) The method of claim 29, further comprising:

2 generating the first lun map to have a set of ordered pairs mapping the one or
3 more client specific virtual lunsVLUNs to one or more physical lunsPLUNs.

1 31. (Cancelled).

1 32. (Currently Amended) The method of claim 29, further comprising:

2 identifying a set of the one or more lunsPLUNs that the client may access in
3 response to the client logging in by,
4 (a) selecting a lun data structure;
5 (b) searching through a list of client identifiers in the lun data structure to identify
6 whether the client may access the selectedone or more lunPLUNs;
7 repeating steps (a) and (b) for each lun data object associated with a given storage
8 system; and
9 accessing, in response to a client data access request, a lun data object by use of
10 the first lun map and without searching the lun data structure.

1 33. (Currently Amended) The method of claim 29, further comprising:

2 accessing a set of lun data structures associated with the storage system in
3 identifying the one or more physical logical unitsPLUNs which the client has permission
4 to access.

1 34. (Currently Amended) The method of claim 29, further comprising:

2 using a world wide name as ~~a~~the client identifier.

1 35. (Currently Amended) The method of claim 29, further comprising:

2 using a Fibre Channel switching network for the first specific client to access the
3 data storage system.

1 36. (Currently Amended) The method of claim 29, further comprising:

2 using an Ethernet switching network for the first specific client to access the data
3 storage system.

1 37. (Previously Presented) The method of claim 29, further comprising:

2 using a multi-protocol storage appliance as the data storage system.

1 38. (Currently Amended) The method of claim 29, further comprising:

2 exporting ~~a set of virtual lun~~s~~the~~client specific VLUNs to the client as a set of
3 accessible luns.

1 39. (Currently Amended) The method of claim 29, further comprising:

2 containing the first lun map within an initiator data structure ~~accessible to the~~
3 ~~virtual logical unit~~.

1 40. (Currently Amended) A data storage system, comprising:

2 a virtual logical unit assigned to a specific client;

3 a log in request received from the specific client, the log in request
4 directed to the virtual logical unitdata storage system;

5 a logical unit number map (lun map) initiatedgenerated, in response to the log
6 inlogin request, the lun map mapping one or more client specific virtual logical unit
7 numbers (VLUNs) to one or more physical logical unit numbers (PLUNs) of the data
8 storage system that the first specific client has permission to accessfrom the virtual
9 logical unit to one or more physical logical units, the specific client having permission to
10 access the physical logical units indicated by the lun map, the map presenting one or
11 more client specific lun numbers mapped to one or more physical lun numbers utilized by
12 the storage operating system;

13 the client specific lun numbersVLUNs exported to the client; and

14 a data access request command received from the specific client, the request
15 directed to a client specific VLUN in the lun map, selected client specific lun, and
16 translating the client specific lunVLUN by the map into a selected physical lun
17 numberPLUN, and performing the data access request command on the selected PLUN
18 associated with the data storage systemthe physical lun number accessing a the physical
19 logical unit supporting the client specific lun.

1 41. (Currently Amended) The data storage system of claim 40, further comprising:
2 the lun map having a set of ordered pairs mapping the one or more virtual client
3 specific VLUNs luns to the one or more physical lunsPLUNs.

1 42. (Cancelled).

1 43. (Currently Amended) The data storage system of claim 40, further comprising:

2 ~~a set of luns that~~one or more PLUNs that the specific client may access identified
3 in response to the specific client logging in by,
4 (a) selecting a lun data structure;
5 (b) searching through a list of client identifiers in the lun data structure to identify
6 whether the specific client may access the ~~selected lun~~one or more PLUNs;
7 repeating steps (a) and (b) for each lun data object associated with a given storage
8 system; and
9 a client data access request to access a lun data object by use of the lun map and
10 without searching the lun data structure.

1 44. (Currently Amended) The data storage system of claim 40, further comprising:

2 a set of lun data structures associated with the storage system accessed in
3 identifying the one or more ~~physical logical units~~PLUNs which the specific client has
4 permission to access.

1 45. (Currently Amended) The data storage system of claim 40, further comprising:

2 a world wide name used as ~~a~~the client identifier.

1 46. (Currently Amended) The data storage system of claim 40, further comprising:

2 a Fibre Channel switching network used for the specific client to access the data
3 storage system.

1 47. (Currently Amended) The data storage system of claim 40, further comprising:

2 an Ethernet switching network used for the specific client to access the data
3 storage system.

1 48. (Previously Presented) The data storage system of claim 40, further comprising:

2 a multi-protocol storage appliance used as the data storage system.

1 49. (Currently Amended) The data storage system of claim 40, further comprising:

2 ~~a set of virtual luns~~ the one or more client specific VLUNs exported to the client
3 as a set of accessible luns.

1 50. (Currently Amended) The data storage system of claim 40, further comprising:

2 the lun map contained within an initiator data structure ~~accessible to the virtual~~
3 ~~logical unit~~.

1 51. (Currently Amended) A computer readable media, comprising:

2 said computer readable media containing instructions for execution on a processor
3 for accessing a data storage system, the data storage system having the steps of,
4 ~~maintaining a virtual logical unit assigned to a specific client;~~

5 receiving a log inlogin request from the specific client, the log inlogin request
6 directed to the virtual logical unit data storage system;
7 initiatinggenerating, in response to the log inlogin request, a logical unit number
8 map (lun map) for the specific client by determining one or more physical logical unit
9 numbers (PLUNs) of the storage system that the first specific client from the virtual
10 logical unit to one or more physical logical units, the specific client having
11 permissionhas permission to access and then mapping one or more client specific virtual
12 logical unit numbers (VLUNs) to the one or more PLUNs~~the physical logical units~~
13 indicated by the lun map, the map presenting one or more client specific lun numbers
14 mapped to one or more physical lun numbers utilized by the storage operating system;
15 exporting the client specific lun numbersVLUNs to the client; and
16 receiving a data access request command from the client, the request directed to a
17 ~~selected~~ client specific VLUNlun, and translating the client specific VLUNlun by the lun
18 map into a selected physical lun numberPLUN utilizing the lun map, the physical lun
19 number accessing the physical logical unit supporting the client specific lunand
20 performing the data access request command on the selected PLUN.

1 52. (Currently Amended) A method for accessing a data storage system, comprising:
2 logging into the data storage system by a client;
3 generating, in response to the client logging into the data storage system, a logical
4 unit number map (lun map) for one or more physical logical units (PLUNs) the client is
5 permitted to access, the lun map excluding mapping of physical logical unitsPLUNs the
6 client is not permitted to access;

7 exporting the lun map to the client; and
8 | receiving a data access request from the client for data on a lun-specific PLUN
9 | mapped by the lun map.

1 53. (Currently Amended) The method of claim 52, further comprising:
2 | accessing the ~~physical logical unit~~PLUNs supporting the a client specific
3 | lunvirtual logical unit number (VLUN).

1 54. (Currently Amended) The method of claim 52, further comprising:
2 | identifying ~~a set of lun~~the one or more PLUNs that the client may access in
3 | response to the client logging in by,
4 (a) selecting a lun data structure;
5 (b) searching through a list of client identifiers in the lun data structure to identify
6 | whether the client may access the ~~selected lun~~one or more PLUNs;
7 repeating steps (a) and (b) for each lun data object associated with a given storage
8 system; and
9 accessing, in response to a client data access request, a lun data object by use of
10 the lun map and without searching the lun data structure.

1 55. (Currently Amended) The method of claim 53, further comprising:
2 | accessing a set of lun data structures associated with the storage system in
3 | identifying the one or more ~~physical logical units~~PLUNs which the client has permission
4 | to access.

1 56. (Currently Amended) The method of claim 53, further comprising:
2 containing the lun map within an initiator data structure-accessible to the virtual
3 logical unit.

1 57. (Currently Amended) A system for accessing a data storage system, comprising:
2 a client configured to log into the data storage system;
3 in response to the client logging into the data storage system, a client specific
4 logical unit number map (lun map) configured to be generated for one or more physical
5 logical units (PLUNs) the client is permitted to access, the lun map further configured to
6 exclude mapping of physical logical units PLUNs the client is not permitted to access;
7 the lun map further configured to be exported to the client; and
8 the client further configured to send a data access request for data on a specific
9 PLUN lun-mapped by the lun map.

1 58. (Currently Amended) The system of claim 57, further comprising:
2 the physical lun numbers specific PLUN configured to access the physical logical
3 unit.

1 59. (Currently Amended) The system of claim 57, further comprising:
2 (a) a lun data structure selected in response to the log in login by the client;
3 (b) a storage system to search through a list of client identifiers in the lun data
4 structure to identify whether the client may access the selected lun a selected PLUN, the
5 storage system to repeat steps (a) and (b) for each lun data object associated with a given
6 storage system; and

7 a lun data object, associated with the selected PLUN, accessed by use of the lun
8 map and without a search of the lun data structure.

1 60. (Currently Amended) The system of claim 57, further configured to access a set of
2 lun data structures associated with the storage system ~~to identify~~ by identifying the one or
3 more ~~physical logical units~~PLUNS which the client has permission to access.

1 61. (Currently Amended) The system of claim 57, further comprising:
2 ~~an initiator data structure configured to access the virtual logical unit contained in~~
3 the lun map configured within an initiator data structure.

1 62. (Currently Amended) A computer readable media, comprising:
2 said computer readable media containing instructions for execution on a processor
3 for the practice of a method of accessing a data storage system, the method having the
4 steps of,
5 logging into the data storage system by a client;
6 generating a client specific logical unit number map (lun map), in response to the
7 client logging into the data storage system, for one or more physical logical units
8 (PLUNs) the client is permitted to access, the lun map excluding mapping of ~~physical~~
9 ~~logical units~~PLUNs the client is not permitted to access;
10 exporting the lun map to the client; and
11 receiving a data access request from the client for data on a ~~lun~~ specific PLUN
12 mapped by the lun map.